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Some one has attributed the extreme hardness of this alfalfa to acclimatization, assuming that it was a tender variety originally. We have made a careful investigation and can not find one thing to show but what this alfalfa was originally perfectly hardy. There is no doubt that there would be some change in over fifty years of growth in Minnesota. We have lately talked with Albert Gerdson, now over eighty years old and a neighbor of Mr. Grimm, and he says that Grimm's log stable was always well filled with this hay after he had a start.

The statement made by a member of the Minnesota Agricultural Society in the proceedings of that society for 1903, that some of the early attempts to produce this alfalfa met with discouraging results, is explained by a son-in-law of Mr. Grimm to mean that the discouraging results experienced by some were due to improper seeding and location of the alfalfa fields. Those who gave proper attention to details were said not to have met with the discouraging results. It is possible that the member of the Agricultural Society was referring to some other alfalfa, since he states that the alfalfa to which he refers was brought in by Swiss immigrants; whereas, the Grimm family had been residents of Baden, Germany.

The "Alt Deutsche Fränkische" lucerne, as determined by both Mr. Brand and the writer, belongs to this same group of variegated alfalfas as do the commercial sand lucerne and Grimm alfalfa. This is said to be much more enduring under unfavorable situations than is the ordinary alfalfa. It is the sort commonly cultivated in the section from which Mr. Grimm originally came and it is quite possible that this constitutes the original stock from which he secured his seed.

The apparent correlation between the variegated flowers and associated characteristics of hardness and drought resistance, makes it of great moment to determine if it is not possible that these dilute hybrids are possessed of such qualities as hardness and drought resistance without the tedious selective elimination called for in the acclimatization of a hardy strain from ordinary alfalfa. It is in all probability true that any non-hardy individuals present in the original seed have succumbed, but the fact

remains that there was apparently present a considerable percentage of hardy plants in the Grimm alfalfa at the time of its introduction into this country. The presence of several rather definite different forms, both in the Grimm alfalfa and in the commercial sand lucerne and in about the same proportions in each, would indicate that there has been little wholesale elimination of the Grimm alfalfa individuals. It may further be stated that the Grimm alfalfa is not perfectly hardy even at the present time in Minnesota, since the state experiment station has been compelled within the past ten years on at least two occasions to plow up fields, owing to winter-killing the first or second winter. It is, however, much hardier than ordinary alfalfa, and the studies above referred to indicate that the primary explanation of the hardness of this strain is in all probability the presence of the apparent small percentage of *M. falcata* in its ancestry, rather than by reason of acclimatization, since its introduction into this country.

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A CASE OF DIPLACUSIS DEPENDING UPON THE TYMPANIC MECHANISM

UNDER the title: "The Rôle of the Tympanic Mechanism in Audition," W. V. D. Bingham reports a rather unusual case, in which the sensibility for hearing remained almost normal after the removal of the tympanic membrane and the first two auditory ossicles from both ears. In that connection a description of the following case of "diplakusis binauralis disharmonika," may be of interest. This is not reported with the assumption that the case is in all respects unique, though I do not find in the literature of the subject anything wholly similar to the present one. The case under discussion is also of special value on account of the fact that the patient is a musician of exceptional talent and training, having been for a number of years president

¹ *Psychol. Rev.*, XIV., 229-243, "The Rôle of the Tympanic Mechanism in Audition."

of the most important musical organization of Sacramento, California.

The condition had its origin in what the patient described as an attack of "earache." The first indication of abnormal hearing showed itself in an apparent repetition of sounds. This was specially noticeable when the patient spoke, "the effect being that of two people saying the same word, one slightly in advance of the other." Investigation showed that the left ear received the sound slightly in advance of the right. In listening to children the effect of the abnormality was more emphasized than was the case when the voices of adults were heard. A piano test showed that the tone reaching the right ear was half a tone higher in pitch than that of the left. The difference in time and pitch appeared definitely only above *f*, on the piano. All tones below that seemed to reach the two ears simultaneously, but the effect was as if the tone and its sharp had been struck together, or as if one had struck a grace note half a tone removed in pitch in each case. It is a familiar enough fact that a short temporal interval between low tones is less easily distinguished than the same interval between high tones, so that the difference in experience with tones below *f*, and those of higher pitch may be explained without supposing that the ears reacted in a different way for high and for low tones. This may account for the fact that the abnormal effect was emphasized in the case of children's voices. This difference in pitch perception was further tested, by placing a tuning fork first at the right ear and then at the left, with the result that the patient heard first the eighth and then the seventh of the scale.

The sensibility of the right ear for intensity was much impaired when air conduction was used, but it was about normal when bone conduction was employed.

Notes on the medical examination, for which I am indebted to H. L. McGavren, showed a rather acute state of inflammation in the tympanic membrane of the right ear; the left ear was slightly affected in the same way. There was a marked pharyngitis and a less developed laryngitis. Hearing in both

ears was improved to some extent immediately after inflation by the Politzer method. McGavren adds: The entire line of symptoms indicates a middle ear complication rather than any primary affection of the organ of Corti. The fact that with bone conduction the perception of intensity was about normal whilst in the case of air conduction it was much below the normal, would seem to be conclusive on this point.

There are three points in this case which may be of interest from a theoretical point of view: (1) The temporal separation of the sounds of the two ears, respectively, (2) the difference in pitch of the tones from the two ears, (3) the fact that the perception of intensity was about normal with bone conduction, and much below the normal with air conduction.

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*THE AMERICAN CHEMICAL SOCIETY
DETROIT MEETING*

THE meeting of the American Chemical Society held at Detroit, June 29 to July 2, was more largely attended than any summer meeting in its history and all the members returned to their homes enthusiastic over the work accomplished by the various divisions of the society.

Meetings were held by the Division of Industrial Chemists and Chemical Engineers, the Division of Physical and Inorganic Chemistry, the Division of Organic Chemistry, the Division of Fertilizer Chemistry and the Division of Agricultural and Food Chemistry and by the Sections of Biological Chemistry and Pharmaceutical Chemistry and the Section of Chemical Education. In all 186 papers were presented.

Besides the reading of the various papers the points of special interest were the largely attended meetings of the Division of Industrial Chemists and Chemical Engineers, which are continually growing in enthusiasm and where representatives were present from all parts of the country. Perhaps the "experience meeting" before this division on Friday morning was the most entertaining feature of their program, for many ideas of value were brought out and the discussion was general. It seemed as if almost every member had some interesting fact which bore upon the experience of others and the hour for adjournment was delayed